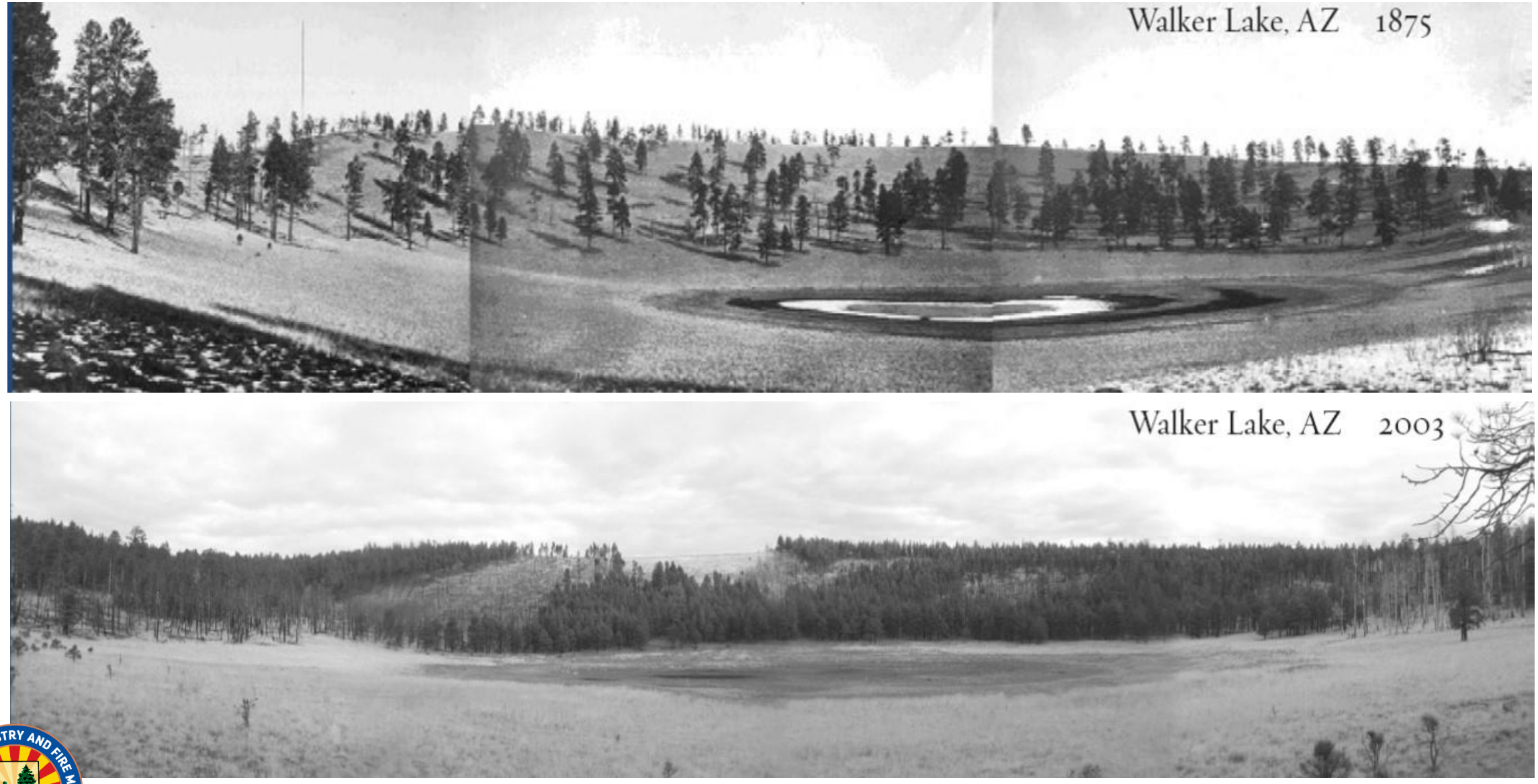
Arizona Landscapes and Fires

Jeff Whitney, Arizona State Forester

Arizona's Forests



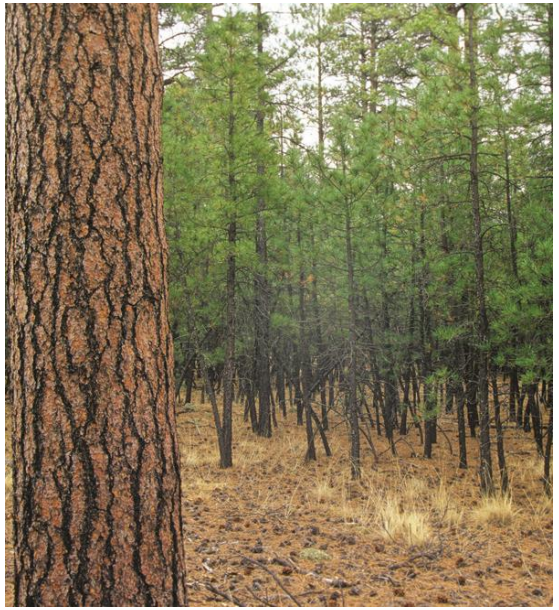
Arizona's Forests

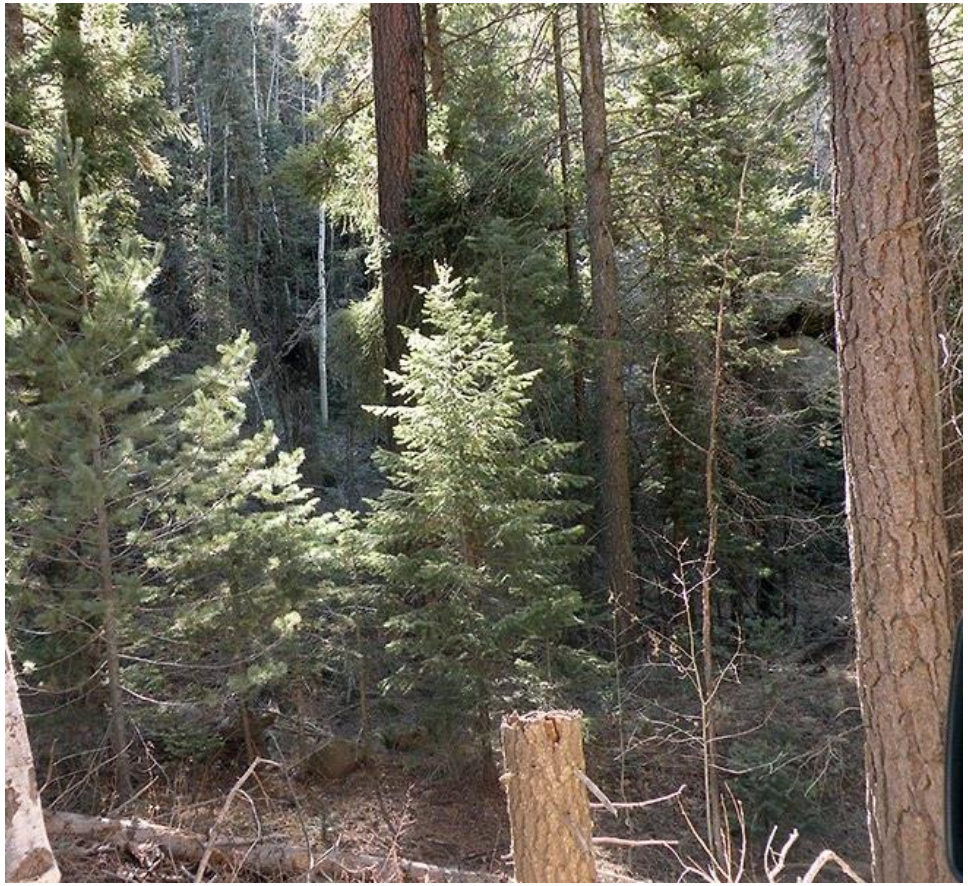
1901 Near Kendrick Mountain Shows Historical Spacing of Trees

"We came to a glorious forest of lofty pines, through which we have traveled ten miles. The country was beautifully undulating…every foot being covered with the finest grass, and beautiful broad grassy vales extending in every direction. The forest was perfectly open and unencumbered with brush wood, so that the traveling was excellent."

E.F. Beale expedition, 1858

Arizona's Forests





- Overgrown thickets
- Multi-year drought
- Bark beetle infestation
- Explosive crown fires
- Soil sterilization and erosion
- Budget-limited forest thinning treatments
- Minimal forest industries
- Biomass disposal - burn piles or controlled burns

Biomass and Treatment Costs

Arizona has approximately **19.4 million acres** of Forests and Woodlands

- 1.4 million acres National Wilderness Area
- 3.9 million acres Pine Forests
- 12.7 million acres Pinyon-Juniper (PJ) Woodlands

NOTE: Assume only **65%** of Forests and Woodlands are accessible for fuels thinning treatment projects.

Biomass and Treatment Costs

Pine Forests (Logs and Slash Chips)

3.9 million acres x 65% accessible = **2,535,000 acres**

10 year thinning rotation cycle= **253,500 acres per year**

Thinning Costs: 253,500 acres/yr x $800/acre [logs and chips]= **$203Million/year**

Biomass and Treatment Costs

Pinyon-Juniper Woodlands (Only Slash Chips)

12. 7 million acres x 65% accessible = **8,255,000 acres**

10 year thinning rotation cycle = **825,500 acres/year**

Thinning Costs: 825,500 acres/yr x $550/acre [chips]=

$454 Million/year

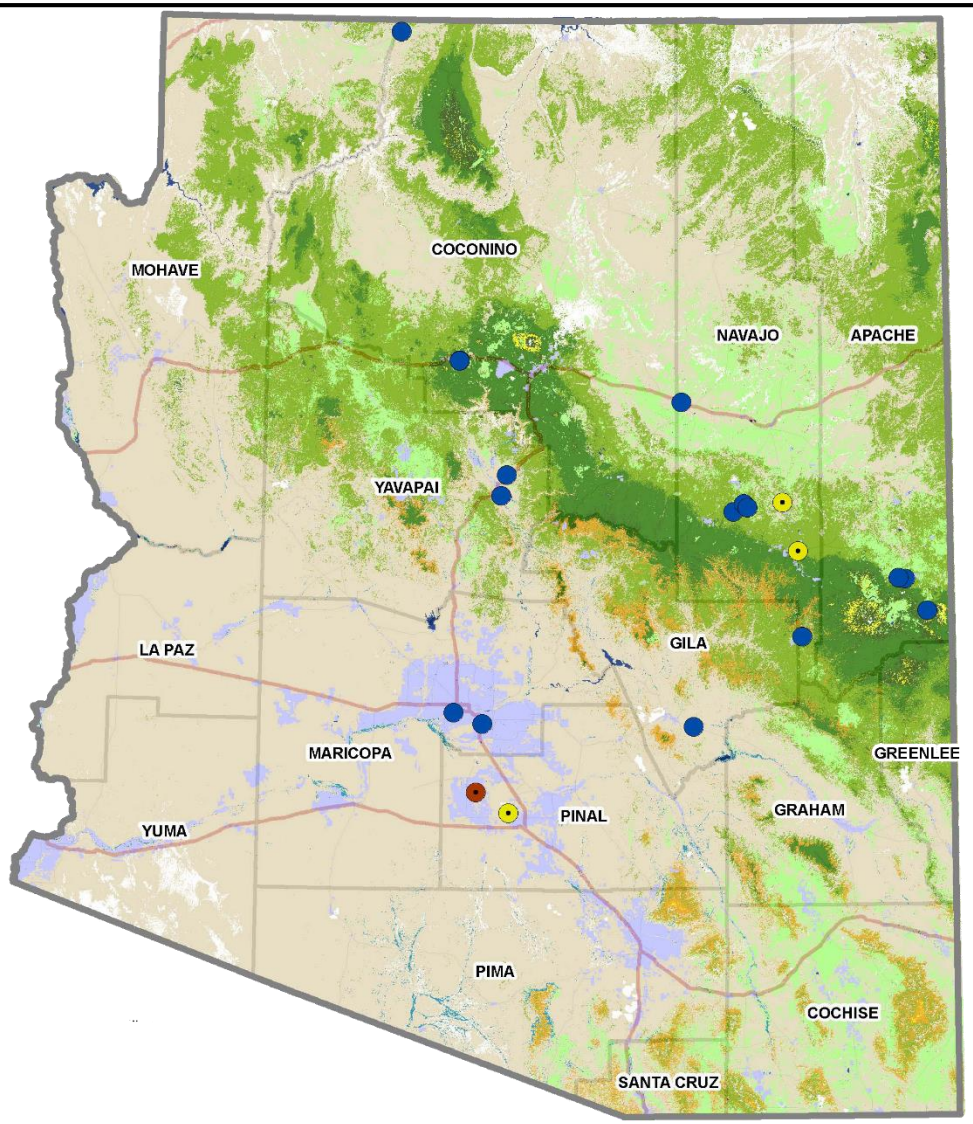
Wood Products Industry

Arizona
Wood Processors

PrimaryProcessors

Material Utilized:

- Logs
- Whole Tree Chips
- Clean Chips



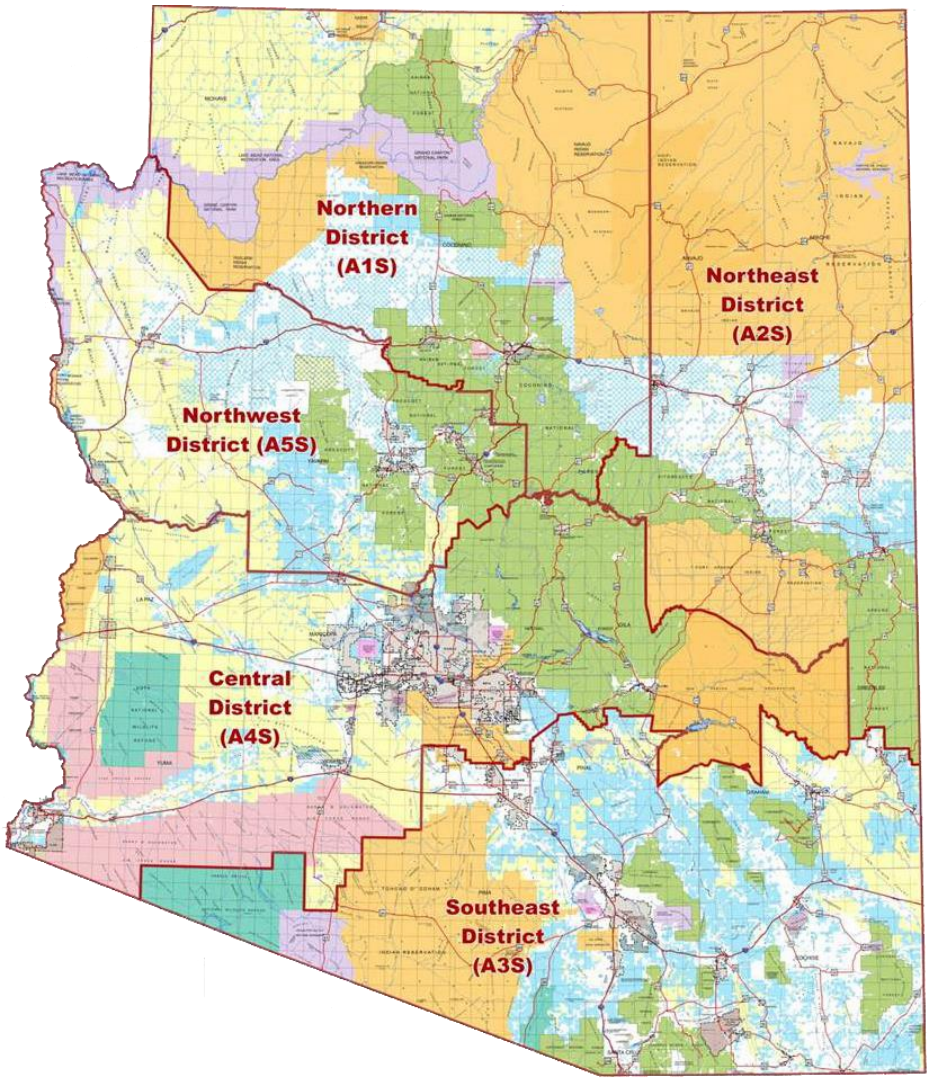
Wood Products Industry

- Forest and woodland treatments are an absolute necessity in Arizona. Unfortunately treatments are costly.
- Forest and woodland treatment costs are high in Arizona because we lack a thriving wood products industry.
- Transportation costs are a huge problem. Lack of processors means materials must travel long distances.
- To nurture the development of industry, we need a guaranteed supply of material.
- Arizona timber is smaller in diameter-lower value, proliferation of brush in woodlands.
- 50-60% of the material removed per acre is “biomass.”

Forest Watersheds

- Healthy forests are the foundation of healthy watersheds.
- Forested lands in Arizona contribute nearly 90% of the total streamflow in the state, much of which comes during spring snowmelt (Ffolliot 1975).
- Ponderosa pine forests, in particular, are the source for a large portion of the state's water. While occupying only 20% of the total land surface of the Salt and Verde River basins, ponderosa pine forests account for almost 50% of the total water yield (Barr 1956).
- Stable healthy stream channels and riparian areas are needed to maintain water quality.
- In much of Arizona's coniferous forests, the # of trees per acre and canopy cover have both increased creating a closed canopy intercepting much of the precipitation.
- Burned over areas are highly erosive and snowpack evaporates or sublimates rapidly back into the air.

Fire Response



DFFM works with Arizona's 260 local fire districts and departments

DFFM has access to over 2500 wildland fire fighters

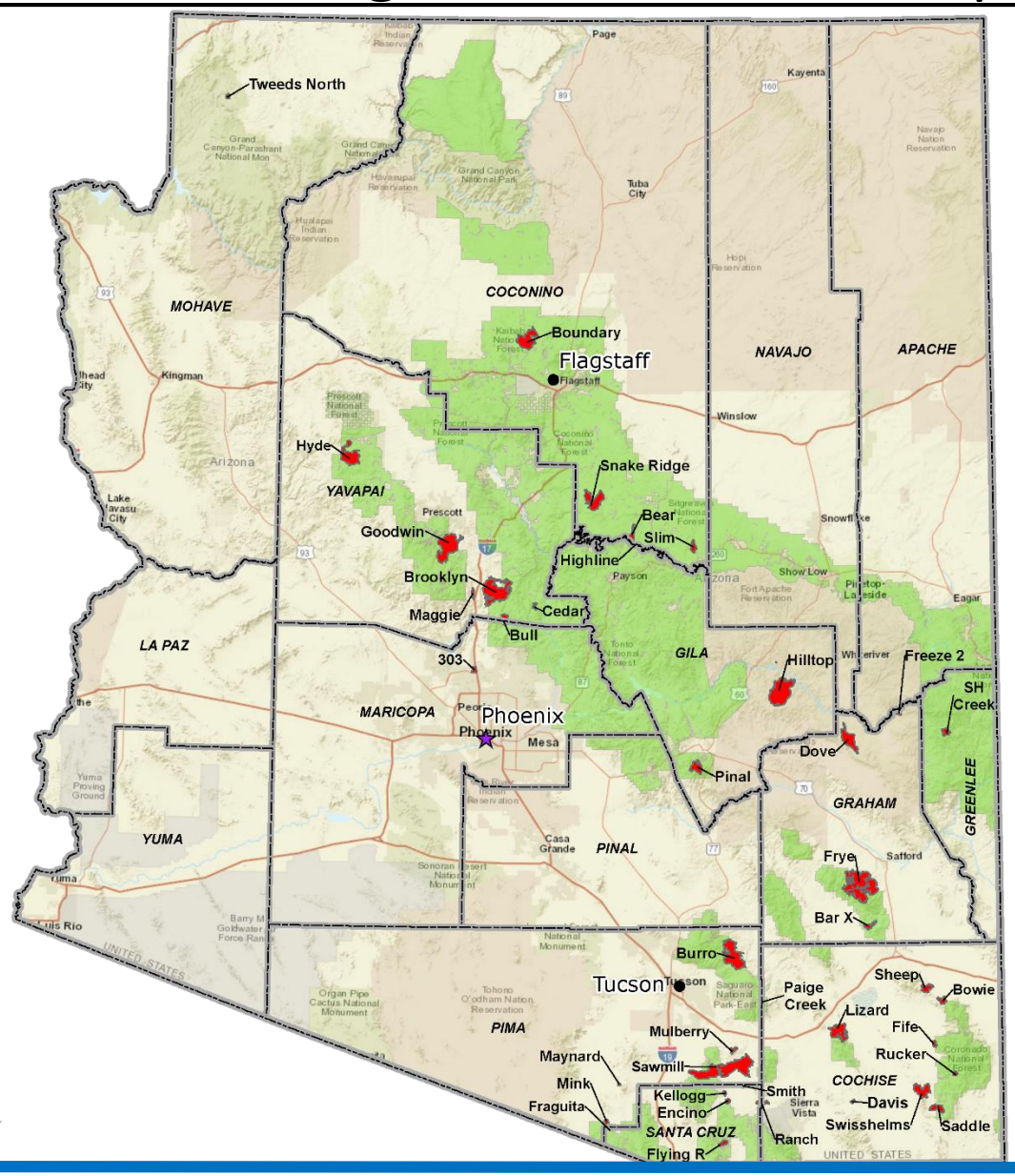
DFFM partners with the Department of Corrections and employs 12 inmate forestry and fire crews

DFFM partners with the USFS to provide large and very large air attack support

Contracts with the Department of the Interior provide single engine air tankers

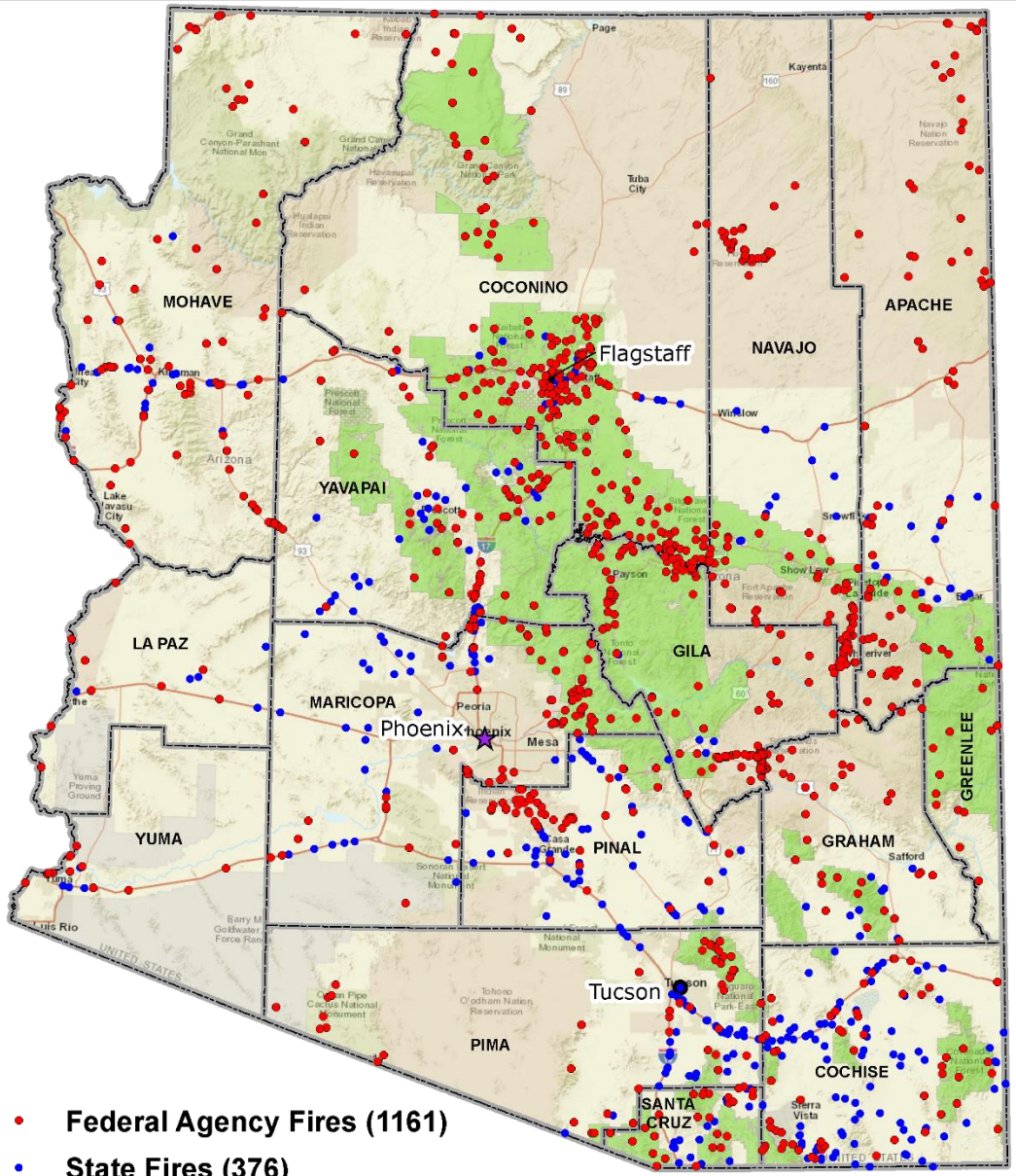
The Department of Public Safety provides helicopter support

2017 Large Fire Perimeter Map

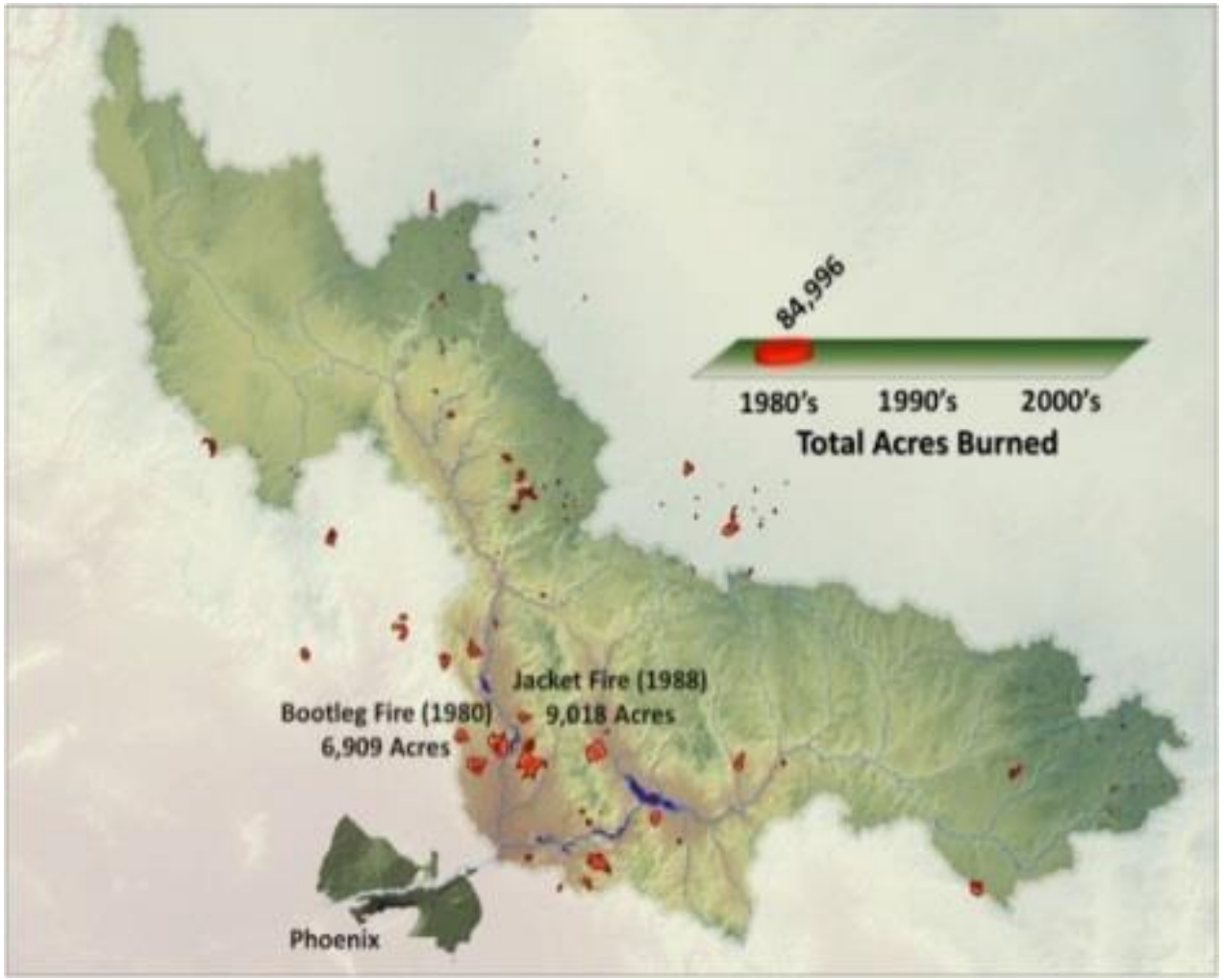


DFFM.az.gov

2017 All Fires



Total Acres Burned 1980s



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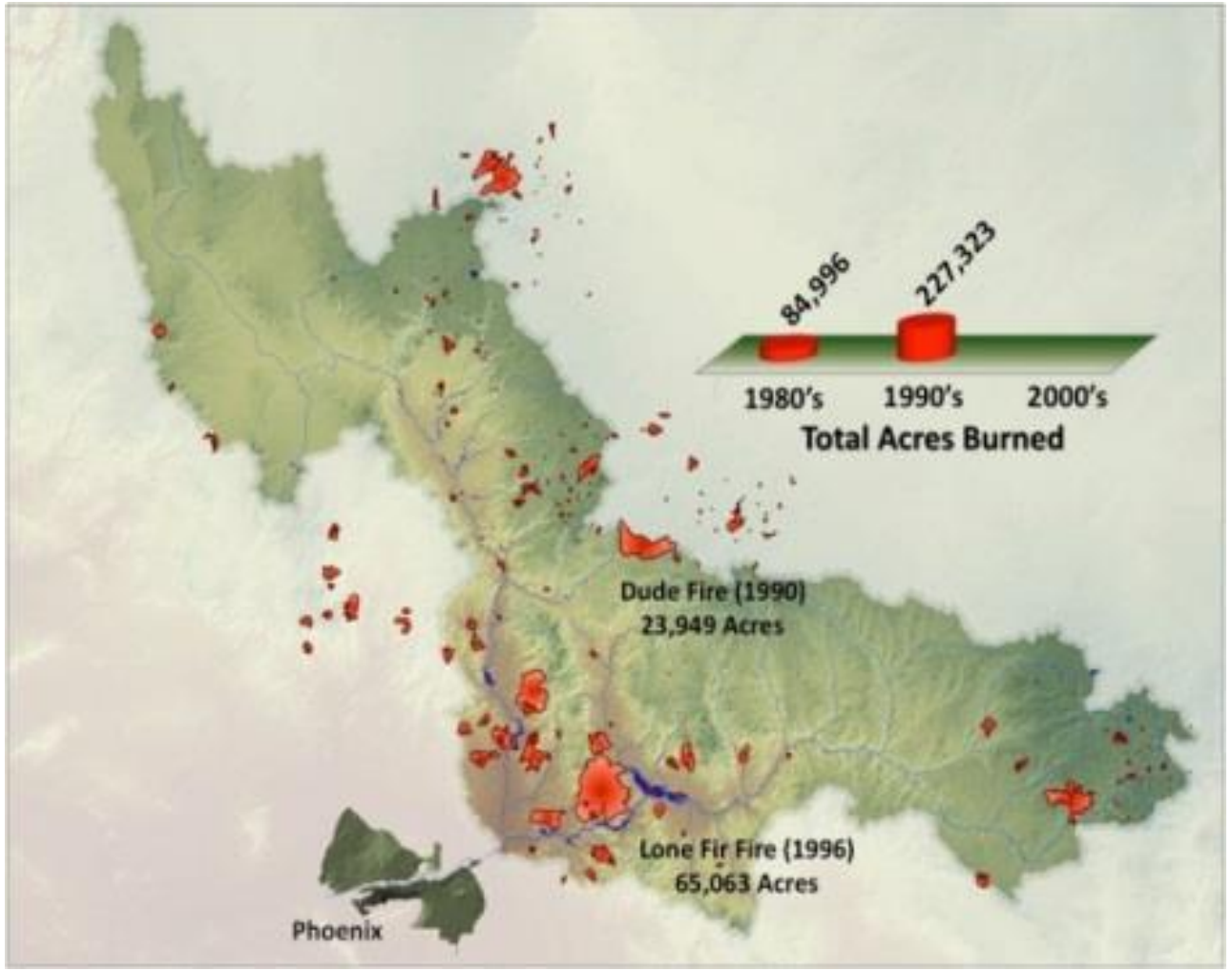
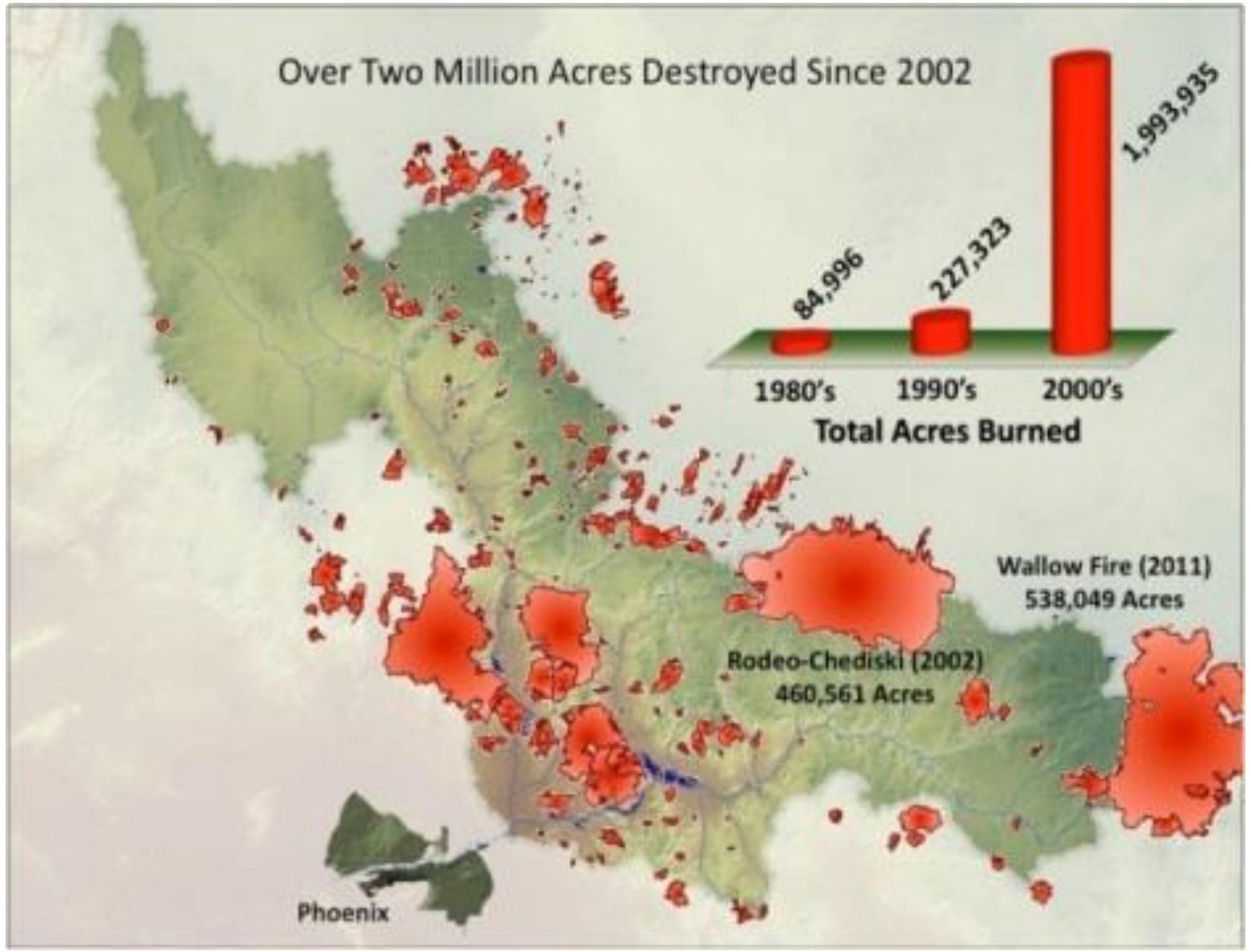


Total Acres Burned 2000s

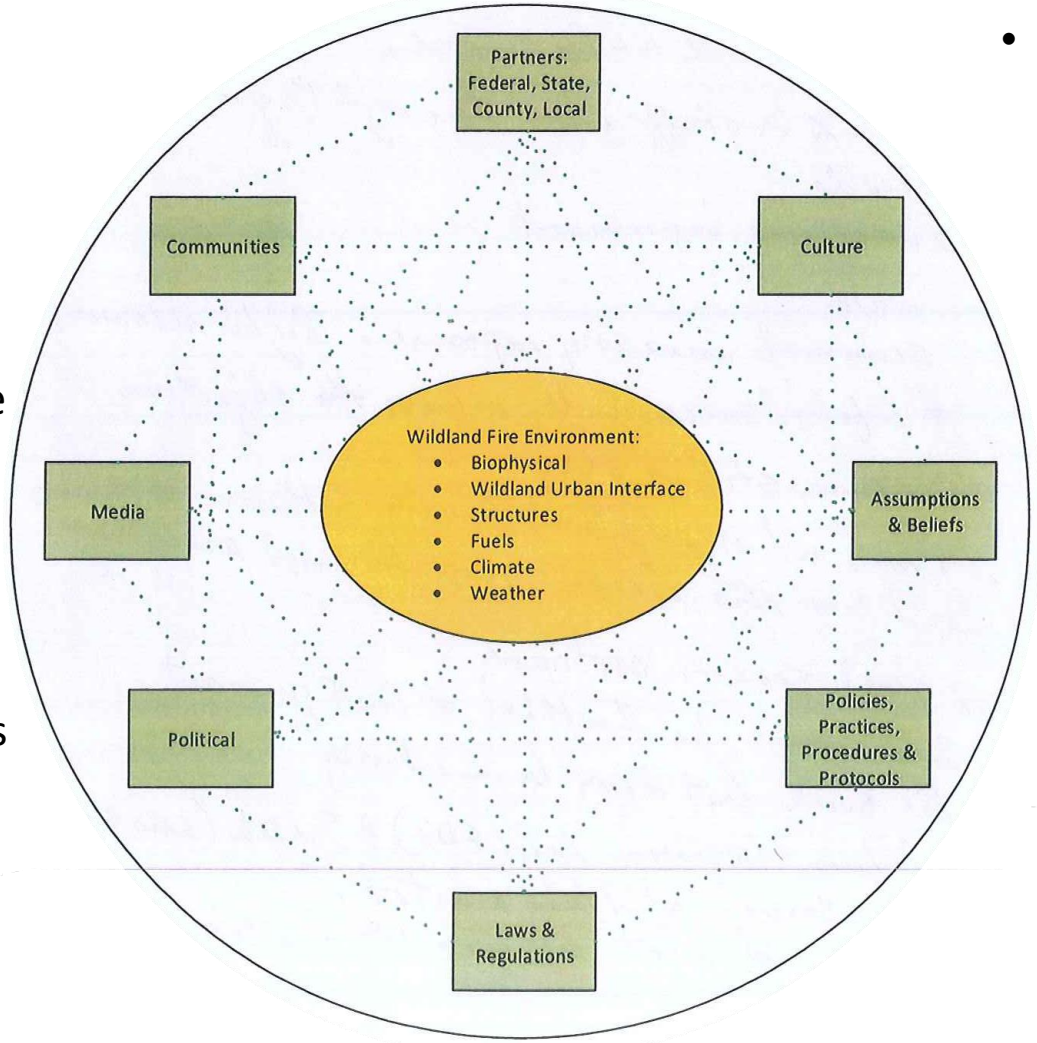


2017 Fires with the Greatest Fiscal Impact

Month		Fire	Estimated Cost	Estimated State Share	FMAG
APRIL	23-Apr	Sawmill	$7,311,640	$3,157,000	
MAY	6-May	Mulberry	$982,142	$825,000	
	8-May	Pinal	$9,264,000	$93,477	
	16-May	Mirador	$300,000	$300,000	
JUNE	1-Jun	Boundary	$8,300,000	$96,600	
	7-Jun	Bowie	$1,500,000	$1,050,000	
	7-Jun	Lizard	$5,876,000	$734,500	Y
	7-Jun	Frye	$24,600,000		
	8-Jun	Kellogg	$417,000	$417,000	
	9-Jun	Smith	$250,000		
	10-Jun	Tee	$750,000	$750,000	
	10-Jun	Highline	$13,160,579	$140,300	
	20-Jun	Encino	$266,000	$266,000	
	23-Jun	303	$178,300	$178,000	
	24-Jun	Goodwin	$13,993,150	$1,595,750	Y
	24-Jun	Saddle	$380,000	$182,400	
	25-Jun	Volcanic			
	25-Jun	Hilltop	$7,686,300		
	26-Jun	Fraguita	$500,000		
	27-Jun	Swisshelms	$3,104,533	$2,747,512	
	28-Jun	Gentry	$1,086,000		
	30-Jun	Burro	$8,948,444		
JULY	4-Jul	Siphon	$388,241	$388,241	
	4-Jul	Elk Horn	$360,000		
	7-Jul	Roach	$940,000	$376,000	Y
	7-Jul	Brooklyn	$1,255,775		
	11-Jul	Fife			
		TOTALS	**$111,798,104**	**$13,297,780**	

Wildland Fire System

- The *wildland fire system* is a set of interacting or interdependent component parts forming a complex/intricate whole.
- The Wildland Fire Environment is representative of the bio-physical aspects of fire plus the ongoing interaction of responders responding to the fire.

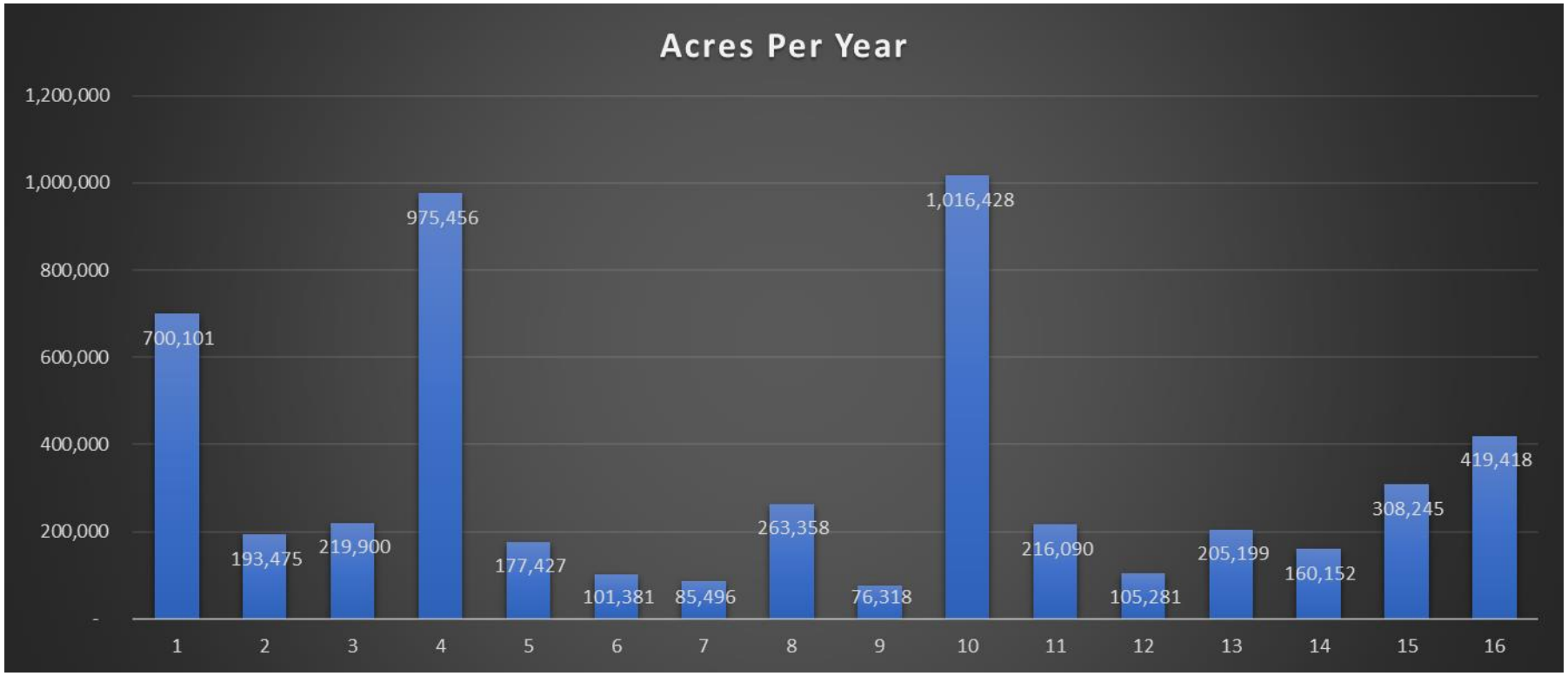


- The wildland fire system has numerous parts: federal, state, county and city legislative interests; general public; interest groups, the wildland fire environment; policies, practices, protocols, culture, assumptions, beliefs.

2017 Fire Season

- 2017 YTD Statewide area burned all jurisdictions : 419,418 Acres
- 2017 YTD Statewide number of fires: 1,705 Fires
- 2016 Statewide area burned all jurisdictions : 308,245 Acres
- 2016 Statewide number of fires: 2,285 Fires
- 10 year average acres (2005-2014): 317,781 Acres
- 10 year average fires (2005-2014): 2,144 Fires

Acres Per Year



Thank You

Contact information:

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